From: Robert V. Hamilton
Subj: MINUTES OF THE TSDIS SCIENCE USERS MEETING OF
            July 5, 1995

Attendees:

Chris Kummerow/912/GSFC   Bob Meneghini/975/GSFC
Erich Franz Stocker/902.3/GSFC   Mike McCumber/902.3/GSFC
Gi-Kong Kim/902.3/GSFC   Robert Mack/902.3/GSFC
George Huffman/912/SSAI   Rich Slywczak/902.3/RPS
Jeff Jones/975/HSTX   Jesse Maury/490/Omitron
Robert Hamilton/902.3/MTI   Long Chiu/902.3/GSC
Karen Katsuleres/902.3/MTI   Mary Shugrue/902.3/GSC
Natalie Arsky/902.3/GSC   Ed Greville/902.3/CTA
Ye Hong/902.3/GSC   Dave Bazell/902.3/GSC
Daniel G. Storch/912/MTI   Tim Price/912
Yuning Guo/902.3/MTI

Agenda

A. Algorithm Development

VIRS limb darkening correction (G.Huffman, GSC)

Mike McCumber asked George Huffman to explain this limb
darkening issue. George said that there are some issues that could
adversely affect his algorithms, and one way to address this potential
problem is to make some type of correction, such as a limb darkening
correction that George has seen done on AVHRR browse images.
However, George said that Bill Barnes says that he will not do a limb
darkening, but rather a mirror correction, and that this may solve
George's potential problem.

Chris Kummerow asked how this issue is related to TSDIS? George
responded by saying that some scan angle corrections might be
added for TSDIS post-processing, and that possibly TSDIS could be a
repository for this data. Chris advised George that this issue is still
his (George's) action item.

B. New Issues/Topics

1. GV issues and agreements (C.Kummerow)

Chris Kummerow said that he would like to keep all data collected for Level 1B, as opposed to every 15 minutes as previously discussed. To offset this increased data volume requirement caused by collecting a continuous data stream, Chris said that volume scans every 30 minutes only will be required for Level 1C and above (Chris said that a 30 minute granule applies only when there is no TRMM overpass. Within 30 minutes of an overpass, all volume scans will be kept). Chris added that he is not sure of the data impact on TSDIS, but reprocessing only for Level 1C might mitigate this increased data volume issue.

Chris said that three fields are needed:

1. QC (use/don't use flag)
2. Reflectivity
3. Reflectivity Correction

Bob Mack asked how TSDIS would reprocess the TRMM Office "black box?" Chris said that this TRMM Office black box is just a series of subroutines, and that the TRMM Office will work with TSDIS on this issue. Chris said that further, all science processing (Level 1C and above) will be based on a 30 minute granule size. In other words, TSDIS will be required to keep only one volume scan for every thirty minutes.

Bob Mack asked if the TRMM Office will deliver to TSDIS two algorithms; one algorithm for processing and another for reprocessing. Chris said that this is correct, and that TSDIS needs to do a volume estimate and let Chris know if the data volume size is too large or small.

The following question and answer dialogue ensued:

Long Chiu: Are L1B all 5 minute scans?
Chris Kummerow: Yes, just format it and ship it off.
Bob Mack: TSDIS to produce 3 hour tripaks?
Chris K.: Yes.
Bob Mack: What are the browse specifications for this new scheme?:
Chris K: Undefined.
Mike McCumber: With the use of volume scans every 30 minutes, the tripak issue might need to be rethought.
Bob Meneghini: Still subsetting the GV coincidence?
Chris K.: Yes, nothing has changed here.

Ed Greville: What about 1B?
Chris K: TSDIS will keep all L1B volume scans as a backup.
Mike M.: Are DP sites now sending L1B?
Chris K.: No.
Mike M.: So only 4 sites?
Chris K.: Yes, from Melbourne, Darwin, Kwajalein, and Texas.
Mike M.: No DD data from NCDC?
Chris K.: Can't guarantee that. Cannot control NOAA.
Mike M.: Principal Investigator (PI) for Kwajalein?
Chris K.: Yes, it is Bob House. Also, each radar site will have a PI.

Bob Mack said that the University of Washington's suggested file formats are different from the TRMM Office suggested format. Chris Kummerow replied that everyone is aware of this miscue, and that Mike McCumber will help to coordinate the resolution of this issue. Bob Mack asked if this meant that the combined format will return. Chris said that no, the PR format is set, and that he will tell this to the University of Washington.

Bob Mack asked who he could go to for information on browse, in order to get software or at least the specifications. Chris said that the Univ. of Wash. should be able to provide some software. Bob Mack then asked if Chris could provide the GV browse specifications. Chris said that it seems silly to do L1B browse. Bob Mack then asked about browse software for CAPPI and RHIs. Natalie Arsky said that a routine can be used from Bob Meneghini's algorithm to generate these browse images, and Bob Mack asked Natalie to work with Tom Johnson on this issue.

2. Issues related to processing 3B-42 and 3B-43 (G.Huffman, M.McCumber)

George Huffman presented diagrams explaining algorithm 3B-42 and 43 data flows and data sources, including I/O issues.

3B-42

a. It might be advantageous to do the Grid/accumulate routine on 2B-31 (TRMM Combined Instrument) at the same time as 3B-31 (TRMM Combined), rather than again accessing all of the data.

b. If there are significant gaps in the VIRS data set that do not exist in the TRMM Combined Instrument (TCI), it might be necessary to consider providing a separate, unclipped intermediate product of TCI for use in 3B-43.

c. The VIRS Histograms intermediate product requires 16 classes to match the histogram classes in 3A-44 (Geo-IR).

d. The TRMM/Geo calibration coefficients are approximately monthly fields, as compared to all other calculations in this product (3B-42), which are pentads. We are willing to define "monthly" as the 7 pentads most closely containing the calendar month, but this still implies that the early part of 3B-42 must be run for 7 pentads (more or less) before the rest of the product can be computed.

e. Is it acceptable to carry the TRMM/Geo Calibration Coefficients A and B as intermediate products?

f. The exact form of the VIRS/Geo-IR Calibration table is not yet settled.

g. It is assumed that the investigators will produce the VIRS/Geo-IR Calibration table, using VIRS data from TSDIS.

h. The timeliness of 3A-44 (3-hr Geo-IR) from GPCP is a potential issue.

i. The agent for obtaining 3A-44 from GPCP is an open question (EOSDIS, TSDIS, investigator).

Note: Mike McCumber said that he thought that the unknown really is the availability and source of the data. The agent is clear; TSDIS is required to get the data through EOSDIS (NASA HQ mandates it).

j. In order to correctly compute 3B-43, we need the 3-hr Geo-IR histograms (which have 16 classes) in this product (3B-42) to generate 3-hr Adjusted GPI precipitation and relative error as intermediate products.

k. Likewise, we need to store the 3-hr Adjusted GPI precipitation and relative error as intermediate products.

3B-43

a. The timeliness of 3A-46 (SSMI) depends on the investigators.

b. We assume that 3A-46 (SSMI) is provided by the investigators.

c. The form of the algorithm for 3A-46 (SSMI) should be coordinated with the passive microwave team; the groups responsible for choosing the algorithm and operationally generating the product have not been finalized.

d. The timeliness and resolution of 3A-45 (Gauge) could represent an issue; as launch date approaches, the issue must be evaluated.

e. The agent for obtaining 3A-45 from GPCP is an open question (EOSDIS, TSDIS, investigator).

f. The exact form of the "Combine" routine that generates the Multi-satellite products is not frozen at this time and might undergo a number of upgrades before launch day.

g. It is an open question whether Multi-Satellite precipitation and relative error estimates should be internal arrays, intermediate products, or final products.

George Huffman said that the implication from his presentation is that since 3B-42 relies on data that might be available in only 3 month intervals, this might be the source of a choke point.

The following dialogue then ensued:

Mike McCumber: GPCP and CAMS data from the same place?
George Huffman: No, GPCP comes from Germany.
Mike M.: Some type of arrangement must be planned for with
     EOSDIS.
Bob Mack: TSDIS should be a concerned about changes in retention
     period and its affects on data storage.
George H.: The impact on TSDIS storage will be minimal, but the
     issue for TSDIS is different gauges "popping in and out" of the
     TSDIS processing environment.
Chris Kummerow: How about if an algorithm requires gauges A and
     B, but A is not yet available, to just go to gauge B processing
     and include gauge A during reprocessing?
George H.: That sounds fine.

Bob Mack: Let's do a worst case scenario and study the data volume
     impact. Make sure John Stout is informed of the 3B-42 and 43
     products.
Mike M.: Concerning the use of 2 different data sets, a problem is
that EOSDIS has no commitment to provide one data source for
routine processing and a different data source for reprocessing.

3. EOS-AM Digital Elevation Map Science Working Group Workshop
at NASA HQ (M.McCumber)

Mike McCumber discussed this meeting that he attended on June 27,
1995:

Topographic data from USGS EROS Data Center, Sioux Falls, SD

-1 km global dataset is highest priority (1 km horiz., 100 m vert.)
-TRMM drives the requirement due to early need date (2/97)
-FY96 tasks
     -assemble South America
     -acquire Australia 1-km data (or create from DCW)
     -update Africa with DTED
     -fill DTED voids in Asia and Pacific
     -generate 1 km derivatives (e.g., slope) from full resolution
          DTED
     -fix below sea level areas in DTED
     -stage all products for distribution (DAAC Home Page)
-FY97 tasks
     -assemble Indonesia and Malaysia

Land/Sea Mask from MISR, JPL

-Land and Water data contains raster mask of bit flags for each pixel
-created for 100 m horizontal resolution dataset

Bit 1: 1=Land, 0=Water
Bit 2: 1=Coastline (water or land)
Bit 3: 1=Inland Lake (water)
Bit 4: 1=Intermittent (water)

Dave Bazell asked if software is available for land/sea mask
determination. Natalie Arsky, who also attended the above meeting,
said that global DTED will not be available before launch, and that

one idea might be to mix the available DTED areas with ETOPO5 data. Chris Kummerow said that doing this will be problematic, especially for the PR. Erich Stocker said that TSDIS will use ETOPO5 for any topographic data base, and that any changes to this might be handled in the MO&DA budget. Erich added that this issue should be discussed again with the PR team at the August meeting, and Erich also asked that a request be made to EDC to also come to the August PR meeting with TSDIS at GSFC to discuss this topographic information issue.

Note: The next TSDIS Science Users Meeting is scheduled for Wednesday, August 2 from 2-4 pm in Building 28/W129, GSFC.